5. The apparatus of claim 1, wherein selecting the first receiver configuration includes adjusting a modem clocking mechanism.

6. The apparatus of claim 1, wherein the power and/or energy consumption is based at least in part on cellular radio access conditions at a receiver of the UE.

7. A power control apparatus, comprising:

a processor configured to cause a wireless user equipment device (UE) to:

determine current channel conditions;

determine current load conditions;

determine, based on the current channel conditions and the current load conditions, an estimated energy and/or power cost of cellular communication; and

reduce, based on the estimated energy and/or power cost, power consumption of a baseband processor of the UE during a time period.

8. The power control apparatus of claim 7, wherein the estimated energy and/or power cost is based at least in part on baseband data throughput.

9. The power control apparatus of claim 8, wherein the estimated energy and/or power cost is further based on power modifying characteristic features identified as being active during an estimation window.

10. The power control apparatus of claim 9, wherein the estimated energy and/or power cost in a particular estimation window is compared to a value, wherein the value is based on historical values for one or more of baseband power consumption, baseband data throughput, load conditions, wireless medium conditions, location, or time.

11. The power control apparatus of claim 7, wherein to reduce power consumption includes deactivating an advanced receiver function that implements an interference mitigation technique.

12. The power control apparatus of claim 7, further configured to cause the UE to:

determine, based on the estimated energy and/or power cost, to modify one or more of:

bandwidth used;

transport block size;

the transmit power used;

whether carrier aggregation/dual carrier is enabled or disabled;

a diversity path used;

whether continuous packet connectivity (CPC) is active; or

a discontinuous reception (DRX) configuration.

13. The power control apparatus of claim 7, wherein the estimated energy and/or power cost is associated with receiving data using a cellular radio access technology.

14. A power module, comprising:

a processor configured to:

receive information relating to baseband power consumption from at least one baseband source of a user equipment device (UE);

estimate a first expected baseband power consumption of the UE;

compare the first expected baseband power consumption to a threshold; and

based on the comparison:

disabling, in response to a determination that the expected baseband power consumption exceeds the threshold, a first receiver function of the UE; or

enabling, in response to a determination that the expected baseband power consumption is below the threshold, the first receiver function of the UE.

15. The power module of claim 14, wherein the threshold is selected so that:

the first receiver function is disabled if a second expected baseband power consumption of the UE with the first receiver function disabled is less than the first expected baseband power consumption; and

the first receiver function is enabled if a third expected baseband power consumption of the UE with the first receiver function enabled is less than the first expected baseband power consumption.

16. The power module of claim 14, wherein the first expected baseband power consumption is expected for a first time period, wherein said enabling or said disabling is for the first time period.

17. The power module of claim 14, wherein the first expected baseband power consumption of the UE is based on receiver functions of the UE active during an estimation window.

18. The power module of claim 14, wherein the threshold is based on historical values for one or more of:

baseband power consumption;

baseband throughput;

load conditions;

wireless medium conditions;

location; or

time.

19. The power module of claim 14, wherein the processor is further configured to determine, based on the first expected baseband power consumption whether to modify one or more of:

bandwidth;

transport block size;

transmit power;

carrier aggregation;

diversity path;

continuous packet connectivity; or

discontinuous reception.

20. The power module of claim 14, wherein the processor is further configured to provide the first expected baseband power consumption to at least one client.

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